OFFICIAL JOURNAL

VOL. III OCT. 1978 NO. III

CALIFORNIA HISTORICAL RADIO SOCIETY

For the restoration and preservation of early radio and radio broadcasting.

CALIFORNIA HISTORICAL RADIO SOCIETY INC.

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THE SOCIETY

The California Historical Radio Society is a non-profit corporation chartered in the state of California, and was formed to promote the restoration and preservation of early radio and radio broadcasting. Our goal is to provide the opportunity to exchange ideas and information on the history of radio (in Calif. especially). We hope to be of service to those interested in such areas as collecting of equipment, literature, and programs, etc., and restoration of early gear. Regular meetings and swap meets are scheduled at least four times a year, in the San Jose area. We now have over 120 members from throughout the state (and a few from out of state). As we grow, so do our benefits to our members. Tell your friends about us!

The Official Journal of the California Historical Radio Society is published quarterly and is furnished free to members. Our first issue was published in September 1975, and copies of early issues are still available; the first issue is $2.00, others are $1.00 each. Articles for the Journal are solicited from all members. Any items of interest, such as restoration hints, information on early radio broadcasts and personalities, anecdotes about the pioneers, etc., will be gratefully accepted. Anyone interested in editing a section of the magazine on a full time basis, should contact the editor. This can relieve our editor of a great deal of work and insure maximum attention to your area of particular interest.

TECHNICIAL SPOT

Replacement of Line Cord Resistors

By: Bill Fox WB6NMP

Line cords with dropping resistors built into them were extensively used on AC-DC receivers built during the mid-1930's.

In addition to being somewhat unsafe, these cords are becoming scarce. After recently purchasing a receiver in need of one of these line cords, I decided to search for a good substitute. A few quick calculations using Ohms law revealed that resistors with a 20-watt minimum rating would suffice for most purposes. Many AC-DC radios do not have sufficient room to allow installation of a common-variety 20 to 25 watt wirewound power resistor. On consulting the Electronics Buyers Guide, I found that a small metal-cased power resistor is available from:

Dale Electronics, Inc.
1300-28th Ave.
Columbus, Neb. 68601

The particular resistor I used was the Dale type HG-25, in a 100-ohm value. The power rating of the type HG-25 is 35 watts. The beauty of this type of resistor lies in the fact that it is only approximately 1/2 inch wide and deep by 2 inches long, all in a metalized case with two mounting lugs. It is available in a resistance range of 0.1 ohms to 273K ohms, and tolerances of 0.05% to 3%. For most line cord replacement purposes, resistance values will be in the range of 100 to 200 ohms, and the 3% tolerance will be more than adequate. The two mounting lugs are used to secure the resistor to the chassis. The chassis will act as a heatsink and provide additional cooling for the resistor.

Dale Electronics apparently supplies their parts through local distributors. I am quite sure that they will furnish the names of distributors in your area. These resistors cost between three and five dollars.

PUBLICATIONS

Our June issue included an announcement as to the book titled "The Cat's Whisker- 50 Years of Wireless Design" by Jonathan Hill. This is a British publication and will be a welcome addition to the library of those of you interested in the development of wireless in the U.K. We quoted a price of approximately $14.00, including shiping. Your Society has completed arrangements with a U.S. publishing firm, whereby we will be able to substantially reduce the cost of this book to members. The revised price is $9.60 for a hard cover copy, and $6.00 for a soft cover. For details, see page 5 of this journal.

QUOTES

The most recent issue of The Antique Radio Gazette, quotes Bruce Kelley, editor of the prestigious "Old Timer's Bulletin" of the A.W.A., as follows:

"Any antique radio collection, whether large or small, is only as impressive as the collector's knowledge of the history, of what he has there."

RESTORATION HINTS

Should the Cabinet be Refinished?

By Sue Coulter

Somebody stop that man!

Your antique radio plays beautifully, and naturally it should look beautiful too. Put away the soldering iron and the VOM and take a good look at the cabinet. What condition is it in now? If you found the cabinet in a junk store converted to a bookcase, hamster cage or housing an aquarium, obviously it needs some restoration. No doubt it has a few coats of enamel. Enamel paint is the favorite weapon of antique defilers. One way to spot an antique in a junk store, is to look for the wooden object having the most coats of pink, green, blue or white enamel. The author has found three beautiful console cabinets by this method alone.

Suppose your cabinet still has the original finish or the original plus some clear laquer? Or maybe the actual wood is scratched, burned, split or unglued? If so, consider refinishing it. If the wood is unmarred and still tightly glued, maybe just a simple stripping off of old varnish, a new stain job and some finish will be sufficient. If the color and finish are still presentable, should you do anything to it? Who are you to try to improve on the original manufacturer's idea? People bring furniture to an antique shop to have it "refinished". Often it looks beautiful when they bring it in, and one wonders why they wish to alter it. Two common customer requests are: 1)"Make it match the other furniture in the room." This is ridiculous, unless it is the same type of wood as the other furniture. Most old radio cabinets are walnut or mahogany and can be stained with oak, maple, etc., but their beauty is lost. Anyone can tell by the grain of the wood, that they are not "golden oak" or "Early American maple". Trying to alter them will only make them outstandingly tacky and phoney looking. They will be only one step above the vintage cabinets that have been gutted and then filled with digital clock radios, sprayed with irridescent paint and put in the young moderns' den. 2)"Make it look like new again." New as of when? Like in 1930 when AK, RCA, Philco et al made it? Or new as in 1978? A restored antique should look like it did on the day it left the factory. Acrylic paints, plastics, modern components and wiring are to be avoided when possible. If any of these must be used, then disguise them, hide them and do all that is possible to achieve the original appearance.

Once the decision has been made to refinish the cabinet, another must be made; do you try it yourself, or take it to a commercial shop? Here are some points to consider: 1) Does the commercial shop strip the old finish material off by hand or is the item soaked in vats of paint stripper? Prolonged soaking in stripper loosens the joints and may even completely unglue it. 2) Discuss the type of finish you want. If possible, furnish the shop with a photo of how this model set looked when it was new. Old wooden objects, including your radio, should glow with the soft patina of mellowed wood- not shine like wet glass, after being "shot" with high gloss vinyl lacquer. 3) What about the logo, will it be removed? Paint stripper most certainly will remove it. It is usually possible, (but tedious), to dry sand around a logo and leave it intact. However, few commercial shops will make the effort. 4) Always remove the works, speaker, grill cloth. glass dial and knobs before entrusting your set to anyone who is not a radio expert.

So you decide to do it yourself! First of all, you will need a well ventilated area, temperature below 90° F.,and free of vegetation, pets, kids and other wild animals that would be harmed by contact with paint stripper. Live in a city apartment? Then how about putting 15 to 20 layers of old newspaper on the concrete drive, place a metal garbage can on this, a wire rack across top of garbage can and put your cabinet on the wire rack.

Materials:

For a cabinet the size of a Philco 70, you will need one pint of stripper, if the old material is varnish. If it is enamel, probably three pints. The author prefers Certified Chemicals F-33 stripper. You will need at least a quart of lacquer thinner. You will also need gloves for your hands. Some plastic gloves dissolve on contact with these materials, so try a heavy rubberized glove with fabric lining, such as Playtex. Also equip yourself with a heavy paint , brush and a small stiff bristled brush. The small brush should not be wire. A denture brush is excellent for scrubbing our the carved areas, because it has two shapes of bristles. Clean, lint-free rags, fine steel wool and if the wood is scratched, some #150 and #220 sand paper are also needed.

After trying many commercial paint and varnish strippers, the author prefers F-33, because it will remove enamel, as well as lighter varnishes. It does not raise the grain of the wood, therefore, sanding is not usually necessary unless the wood has been scratched. It can be rinsed out of the wood with lacquer thinner. It acts rapidly, so glued joints are not exposed to harsh chemicals for long periods of time.

Procedure:

1) Apply the F-33 with the heavy paint brush. If the cabinet is large or the temperature is hot, begin at the top and do only one square foot at a time. The time period for leaving F-33 on the wood, depends on the type of paint varnish being removed. Leave it on until the old material crinkles and forms a wrinkled skin. Remove this skin with a rag soaked in lacquer thinner. Remove the majority of the old finish in this manner. Once you've gone over the cabinet and removed the majority of the paint, concentrate on the crevices and carvings. Dip the small brush in F-33 and scrub the material out of the stubborn areas. When all of the old material has been removed, scrub out the carvings with the small brush and lacquer thinner. Allow the wood to dry.

2) If gluing is needed, glue the joints, loose veneer, etc. Let it dry a little longer than the time recommended by the glue manufacturer's instructions.

3) Burns, scratches and other disfigurations can now be removed by sanding. Excess dry glue can be removed with sand paper or a very sharp knife blade. Always scrape and sand with the grain of the wood, never across it. For deep scratches etc., begin with the heavier paper (#150). If your set has veneer, go easy. If you are too vigorous, you could sand right through the veneer. When the greater part of the scratch is no longer visible. Finish off with the fine (#220) paper. Con't on page 4.

4) Wash the set with lacquer thinner and allow it to dry. The wood should now feel satiny smooth. This wash should remove the dust, dirt and perspiration that resulted from the sanding.

5) Staining: The author's preference is "Wood Finish by Miniwax." An 8 oz. can is more than enough for even a console cabinet. Remember that the exact shade you get, depends on the length of time that you leave the stain in contact with the wood. Apply with the lint free cloth to a small area, wait a minute or so, then wipe off. If you wish a darker shade, apply more stain, wait and wipe. With a little experimenting, you'll soon find out how long you must leave it on your particular piece of wood to get the desired shade. Incidentally, if you have a red mahogany wood, and can only find the dark mahogany stain in your store, try Miniwax's No.235 (cherry). It brings out the very best in red mahogany. Follow the instructions on the can. Miniwax stains and seals, but if you still want a little extra shine, hand rub Satin Tone on it. After the first coat of Satin Tone is dry, lightly steel wool it, and apply a second coat. When the second coat is dry, lightly steel wool again, and then give it a good rubbing with furniture polish, like Pledge Lemon Oil.

Good luck! You've just saved yourself about forty bucks! May your thing of beauty be a joy forever.

CHRS

THE RADIO DOCTOR STORY

By Jack Mayr

My interest in communications started with a neighbor, Edgar Martin in 1913, or thereabouts, when we built two wireless receivers and two Xmitters in Hemet, Ca. The Xmtr was, (at my location), a Rumhkorf Coil, which put out a 3/4" spark, into a homemade Helix and a quenched gap. The antenna was about 230 feet long from the "shack" to a pole set on one of the ridges of Park Hill. The receiver was a loose coupler, an electrolytic detector, and a pair of 1000 ohm earphones, from The Electro Importing Co. This set-up worked for about eight months until Mother Nature stepped in with high wattage, and the parents refused to rebuild the "shack."

My attention was then transferred to the high school lab, where I concentrated my interest on Geisler Tubes and Wimhurst Machines.

When family troubles broke up the home about 1916, I found myself in Oakland, Ca. looking for a job. I worked in the shipyards during the day, and studied Pedagogy at UC in the evenings. In the shipyards, I found some solenoids with miles of DSC #26 wire on them. That started it again.

I made Xtal sets for the family, relatives, and friends. I later bought a 301A from Leo J. Meyberg in S.F., for $8.00, and it probably would have worked swell, but the damned filament wouldn't stand 45 volts, accidently, for even a second. Lesson #1: Read directions and be careful!

My next tube was a WD 11 and I used it in a modified Hartley. I received station KFI and that did it! I was roped! I then built a Lacault Ultradyne.

That summer, instead of taking summer school, I took a berth as Sparks on the steamer Elkridge, of the Struthers and Barry Line. I came home a sadder and wiser man. Chinese girls aren't built that way at all. Con't. on page 8.

DEADLINE FOR ARTICLES AND ADS FOR NEXT ISSUE IS DEC. 4th.

THE Cat's Whisker

50 YEARS OF WIRELESS DESIGN

JONATHAN HILL

PHOTOGRAPHS BY TREFOR BALL

The hisory of the wireless set, from the earliest amateur creations, through its heyday in the Second World War, to the postwar advent of television.

Jonathan Hill's complete and readable account of the sets and how they were developed has more than 120 illustrations from the author's own collection of vintage radios and components, early photographs of transmitting and receiving stations, wireless manuals, magazine advertisements and cartoons.

The CAT'S WHISKER also contains a chronology of wireless history from 1864 when James Clerk Maxwell presented his theory of the existence of electromagnetic waves to 1946 and the introduction of the BBC "Third Programme" in Great Britain. There is valuable information on how to date a receiver from the names of the stations on the tuning dial, and a bibliography of U.S. and British works on the history of radio broadcasting.

Everyone who even knows what THE CAT'S WHISKER
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THE FIRST RECIPIENT

In choosing our first recipient, we felt it should be someone within one of the fine organizations around the country. Many names were suggested, but the one name that stood out above everyone else, was that of Bruce Kelley. For his unselfish devotion to the research and documentation of Wireless history, we are proud to salute Mr. Bruce Kelley!

A.W.A.'s Bruce Kelley, accepting the first Dr. Charles D. Harrold Award.

NOTICE!

Due to the increase in postage fees, we are forced to increase our dues. The new rates are effective for new applications and renewels, as of Nov. 1, 1978.

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THE TUBE COLUMN

McCullough-Kellog AC Tubes

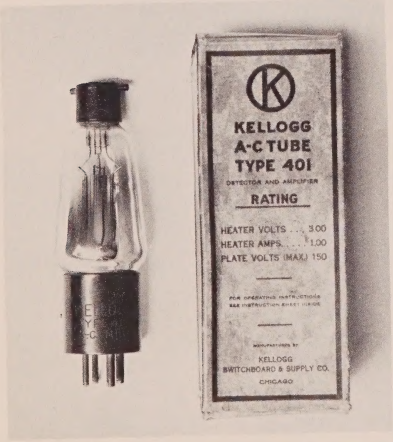
By: Russ Winenow W6AVG

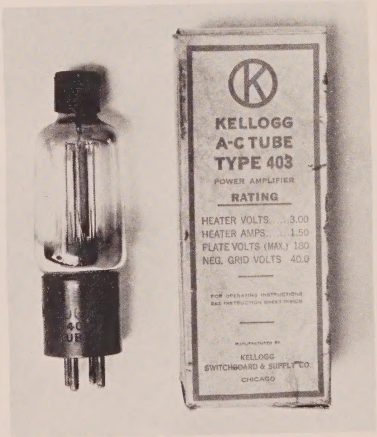
The tubes illustrated herewith are known as the McCullough-Kellog AC tubes. These tubes were originaly designed to be able to use common AC house current (stepped down) without a great deal of hum, which was always present when an attempt was made to use AC on the filaments of the existing tubes of that day. These tubes employed an indirectly heated cathode rather than the plain filaments, and were a major break-thru in the reduction of hum.

First introduced in 1926 by McCullough, he soon sold out to the Kellog Switchboard Co. who continued to make them for some time, until RCA got into the act. Others followed Kellog,such as National Union, Sonatron and several other odd-balls which were no doubt adaptations of the RCA 227,to provide heater connections at the top and a four prong base for replacement purposes in radios built for the Kellog tubes.

Popular Radio Magazine of July-Aug. 1927, describes the McCullough AC401 as the pioneer among the AC operated valves. It is described as having the standard base of four prongs,only three of which are used and is suitable for any usage, to which the standard 201A can be applied. The same article also describes another AC tube called the "Sovereign". The characteristics are essentially the same as the McCullough, but the appearance differs slightly, in that the sides of the glass envelope are straight, and the heater terminals at the top are threaded and use knurled nuts.

Radio News for March 1929, lists AC tubes, among which are what they call the "Overhead Filament Types". They list the 401 with filament (heater) voltage of 3 volts, and current of 1 ampere, used as a detector amplifier (not power amplifier). Also listed is the 403 with filament (heater) voltage of 3 volts, and current of 1.5 amperes, to be used as a power amplifier. Incidently, the 403 has straight up and down sides and is slightly larger than the 401. In 1928, a patent was issued to Earl L. Koch for a tube essentialy the same as the McCullough, except for an additional grid element, which was supposed to assist in reducing the hum. This idea was abandoned and as far as I know, none were ever made for commercial use.





For more information on these tubes, I recommend C.Q. magazine for Sept. 1975. Auther J.K.Bach has written an indepth article on the background of these tubes.

Radio Doctor, con't.

The shipyards were still having labor trouble, so I opened a small radio shop on 25th Ave. I didn't know much about radio, so I took a course from The Radio Doctors in Mass. On finishing it, I was entitled to use the name in my business, but Glenn Bolesby was already using it in Oakland, so I couldn't. I still didn't know very much about radio, so I made the rent by winding power Xfmrs for battery chargers, electroplating, etc., and rewiring burnt-out earphones. I also sold Xtals, cat-whiskers, earphones, and Silver-Marshall kits and parts. I later had a chance to rent a shop on East 14th St., where I built four receivers for a glider club and started auto radio work, with my own car as #1. I got to know Sargent of Infradyne fame and worked with him on audio jobs.

About this time, I married the girl across the street, after going skinnydipping with her sister. There is another lesson here, but I flubbed.

I continued to do a lot of qudio work and attracted the attention of the engineers at KFWM and KGO, with my noon broadcasts of KLX Hawaiians, on a 71 A. The secret was a homemade exponential horn, but they never found out.

I helped to organize the East Bay Assn. of Radio Service Dealers with Gordon Braun. We were fighting the Free Tube Testing racket, but we never really licked it.

In 1932, we moved to Oroville and increased the population by a total of three. I assumed the name of "Radio Doctor", and developed the soldering gun when my Amereican Beauty burned out in 1942. Weller made it for me, and I still have one of the originals.

During the war, I went into the Army Air Force, and taught cadets the code, and learned to fly. My wife manned the shop in Oroville, in my absence.

After the war, in 1945, we moved everything to Chico, after selling the Oroville shop to Andrasakis. I received my FCC 2nd Class telepnone license, and did taxi, Police, CHP, Fire, and Industrial Radio service. I started a M.C.C., "Telephone in your car", but it didn't pay and I had to fight Ma Bell.

In 1967, I retired and went to Alaska. However, it was too cold there for me, so I returned home to the salt mines. By that time, the harmonics were all suppressed, and didn't need any more help from us. Therefore, we sold the store and real estate, and moved to Palermo with about forty years of collectables.

E. 14th. St., Oakland Cal.

Bird St., Oroville Cal.

For an additional photo, please see the cover of the last issue.

FEATURED SET

By Floyd A. Paul

THE MODEL 20 ATWATER KENT COMPACT RECEIVER

In late 1924, AK introduced Model 20 (4640) which was basically a Model 10 breadboard redesigned to fit into a cabinet 26" x 9" x 8 1/2". Atwater Kent felt the set could be made smaller and in 1925 he brought out the Compact Model 20 (7570) in a cabinet 20" x 6 1/2" x 5 3/4", which was 35% of the volume of the previous Model 20. One other Compact Model 20, a (7960), was sold in 1925. The featured set of this issue, the 7570, remained in production through 1927. All Model 20's were 5 tube TRF sets. Unlike the TF-6 Thermiodyne featured in the last issue which used parts made by various parts manufacturers, the Model 20 sets used only parts made by the AK factory. All AK parts in the 7570 were well designed for durability, and the workmanship of some finished parts is a thing of beauty.

As background for new readers, AK was a quality manufacturer of ignition systems, self starters and lighting systems for autos in the 1910-1920 era. AK made headsets in 1919, and branched into radio parts in 1922, including switches, tube sockets, rheostats, sealed amplifier units, variocouplers, variometers, transformers, misc. hardware and horn speakers. AK's first sets were an assemblage of his parts and included Models 5, 8, 9, 10 & 12. Lacquered polished brass and shiny brown bakelite components helped show off and sell AK sets in 1925-27. The AK organization was dedicated to building a quality product, as AK did for several years in the manufacturing of automobile parts.

The author's Model 20 (7570) set, had two tags on the bottom: 1) warranty and 2) inspection and manufacturing. The front panel controls consist of three variable capacitor knobs, a 3 position antenna coil tap selector switch and a molded panel-mount unit with double rheostats and off-on switch. (See Fig. 1) Some features of the 7570 are: 1) balanced variable capacitors, (by counter-balancing the aluminum plates with a metal weight, off-center and radially opposite to the plates), fixed capacitors rated at 450 and 500 volts, and a very compact design for its day. One of two 10 ohm rheostats controls the filament voltage of the two RF tubes and the other rheostat controls the filament voltage of the det. and two audio tubes. AK designers allowed for decoupling among the three RF LC circuits by physically mounting the three RF coils at mutually perpendicularly positions to each other. (See Fig. 2) Some distortion was experienced in tuning strong signal stations, but the distortion was minimized by reducing the heater voltage to the RF tubes. Voltages of 3 1/2 to 4 1/4 volts tended to keep the RF tuning sharp and reduce distortion. The equipment used to operate the set for this article, were a Sterling B eliminator of 1926 vintage and a Heathkit IP-27 regulated power supply set at 5 volts and delivering a maximum ripple voltage of 250 microvolts. Con't on page 10.

Fig. 1

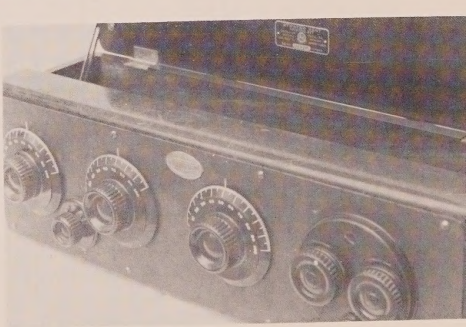


Fig. 2

In checking this set out, the author found the primary winding of the first audio to be open. (plate circuit of the det.) Since a replacement transformer was not available, the quthor decided upon a simple RC network to replace the open primary winding. A coupling capacitor of .1 mfd was used to pass AC signals from the plate of the det. to the grid of the 1st audio and a General Radio decade resistance box was put into the plate circuit of the det., and several plate load resistor settings were tried. With a load resistor of 5K ohms, the gain of the det. and efficiency fell off badly. With 10K and 20K ohms, the results were identical and good, but with 50K and 100K ohms the output seemed optimum. (Max. gain and minimum distortion) So, although 10K ohms is given as typical plate load resistance for 01A tubes as detectors and amplifiers, the author selected an 82K ohm, 1/2W resistor and tests were performed with that value. A detector E_p of 50 volts was found to work well and the tube consumed 0.3 ma. at that voltage. The RF and B plus cables were tied together for convenience and voltages of 40 to 150 volts, were used for tests. In the 40 to 50 volt region, some lowered volume and some distortion were noted. At 60 to 75 volts, good performance was noted and from 75 to 150 volts, little change in performance or volume was noted. At 60 volts, about 10 ma. was drawn from the power supply. Although a "C" bias voltage of -4 volts was tried, the only effect noted was a slightly reduced plate current consumption of 2 ma. to the audio tubes. When B batteries were used in the 20's, that reduced current meant longer battery life. During the testing, the C- lead was tied to A-.

A Radiola UZ-1325 horn speaker was connected to the output tube durning these tests. It has a 2,000 ohm dc resistance. At 500 hertz, its impedance is 10K ohms. The dc voltage drop across the horn was 3.5 volts. Loud signals produced a 6 to 10 volt AC voltage swing across the speaker. Lesser signals producing 1/2 to 1 volt AC signal at the speaker, yielded a lower volume, but a more understandable and readable signal in a quiet room.

A frequency response test was made of the audio circuit with the RCA UZ-1325 speaker connected. The detector tube was removed and the normal voltages discussed in this article were applied to the two audio tubes. An audio signal generator voltage of 0.2 V. AC was put into junction 1 . (See Fig. 3) Several different frequencies were selected. For easy comparison, Table 1 below shows all voltages divided by 0.2 in order for input voltages to be compared to unity (or one). Table 1 then allows the ratios of voltage gains at various frequencies to be compared at junctions ②, ③ & ④, which are output of 2nd audio transformer and output of final audio, with speaker impedance actively coupled. One can observe the audio frequency amplification of 500 to 2,000 hertz, into the grid of the final audio, was reasonably flat. However the signal into the speaker (speaker impedance interacting) begins to peak dramatically in the 2K & 3K hertz range.

At some future date, an audio transformer will be found to replace the bad one. The additional voltage gain of that replacement, (factor of 3) over the existing RC network, will restore some of the set's gain and volume, particularly helpful on weaker signals. In the meantime, the set works fine, with an extra long antenna. (See Fig. 4, for the wiring diagram of Model 20, 7570.)

Voltage Gain Ratios At Various Junctions

TABLE 1

Freq. (hertz)	Junctions ①	②	③	④
150	1	3	7	6.5
250	1	3.5	8	11
500	1	6	18	35
1K	1	6	15	65
1.5K	1	6	13	70
2K	1	6.5	15	100
3K	1	5.5	15	110

Con't. on page 11

COLLECTOR SPOTLIGHT

THIS ISSUE: DAVE BRODIE

Dave is one of our young oldtimers, and one of our most active members. Dave is a past Vice-President and presently holds the title of Secretary in our organization. In addition he is an active member of AWA and the British Vintage Wireless Society.

Dave is interested in repairing, restoring, and collecting antique radios. Recently he has been concentrating on crystal sets of American and European vintage.

He has been an amateur radio operator since 1955, with the call letters W6PGQ. In this realm he is a member of ARRL and the Ex "G" Radio Club.

Dave is a Certified Public Accountant and a retired partner of Cooper's and Lybrand C.P.A."s.

Featured set con't.

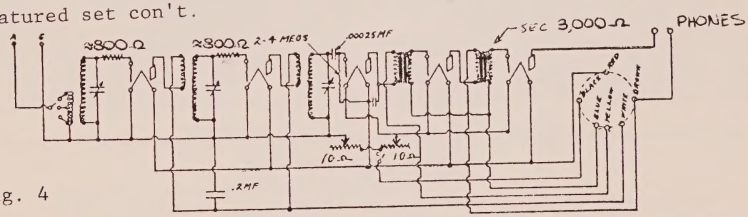


Fig. 4

MODEL 20 COMPACT SET No. 7570. WIRING DIAGRAM.

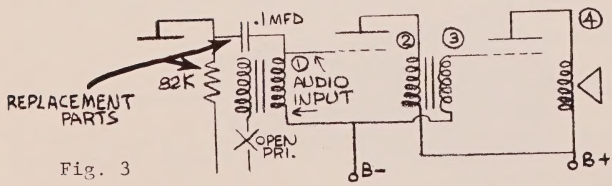
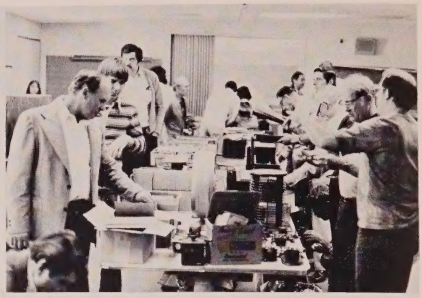


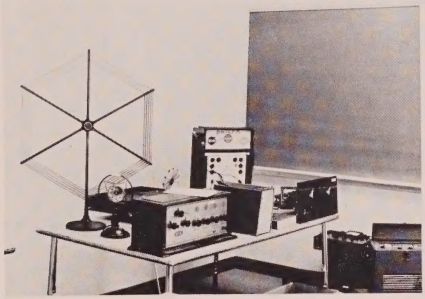
Fig. 3

SWAP MEET

The following photos were taken by George Durfey at out summer swapmeet.



Hey man! Who's selling the beer?



NOTICE

Membership applications are available for the following organizations from your Corresponding Secretary:

Antique Wireless Association:
One year- $6.50, first class, $5.00 third class
Two years- $12.00 " " , $10.00 " "

British Vintage Wireless Society:
£6.00p. per year (approx. $13.50)

Contact Dave Brodie, phone 415-323-0353

Brett Morrison, who played Lamont Cranston on the radio series "The Shadow", died recently at the age of 66, of a heart attack. He resided in southern California.

LETTERS

Norman Berge, President
California Historical Radio Society
P.O. Box 1147
Mountain View, CA 94040

18 May, 1978

Dear Mr. Berge:

The AWA/CHRS meeting at Los Altos on 22 April, 1978 was my first CHRS meeting, and I hope to convey to you, herein, what a delight it was.

Everything about it was extraordinary -- the weather, the setting, the people -- it far exceeded my expectations, which were high. You and the persons who put it all together are to be congratulated.

The swap meet was spirited, the afternoon session was exceptional and the fellowship was warm and genuine. As a newcommer I found an atmosphere that made me feel at home -- even to the extent where I appreciated and understood the good natured jibes, ribs, and "in" jokes that peppered all of the afternoon talks.

Well, by now you probably get the picture that I got the picture of a top notch event. At the closing I applauded until my hands hurt. So, Mr. Berge, take another bow for CHRS. Incidentially, Dave Brodie's slide show was a gem.

End of superlatives.

In responding to all of this, if there is anything that I can do to help CHRS in the future, please drop me a line and tell me what it is.

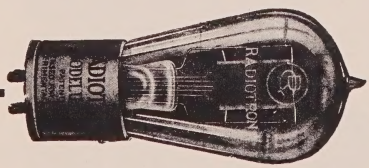
Thanks for a smash event,

Ralph

Ralph Clark (208-A)
2550 Pacific Coast Highway
Torrance, CA 90505

NEXT ISSUE

- THE WORLDS MOST DURABLE LIGHT BULB.
- THE HARROLD AWARD - WHAT IT STANDS FOR.
- C.H.R.S. FIRST LIFETIME MEMBERSHIP RECIPIENT
- MANY, MANY, MORE FASCINATING, ENTHRALLING AND EDUCATIONAL FILLERS.



THE COLLECTOR'S ADS

WANTED: Old beat-up Radio news magazines, ads, or other radio related literature, for donation to C.H.R.S. for use in the journal. Please send to the editor.

FREE: Big list of early radios and related items. SASE please. DENNIS PETERSON, 5701-40 Ave.,So.,Minneapolis, MN. 55417

FOR SALE: World Radio $60., AK57 $60., Grebe Sycrophase w/o tubes- $90., G.R. 546 u Volter $17.50, Transoceanic Portable $20., AK B Eliminator $17.50.
WANT: Magnavox Horn.
FLOYD A. PAUL, 1545 Raymond, Glendale, CA. 91201

WANTED: Manuals or schematics for military wire recorders & VLF receivers. Xerox OK. Would like to correspond with anyone who has a telegraphone, or knows of any- for research project.
H. LAYAR, AV-SF State U.,1600 Holloway Ave., San Francisco, CA. 94132

WANTED: RCA Victor Service Notes, "1929-1932" and "1939". Have extra "1931-1932" and "1938" Service Notes for trade or sale.
DON STEGER, 4821 Rockland Way, Fair Oaks, CA. 95628 916-967-4630

WANTED: Silver-Marshall parts: Audio transformers Nos. 251, 255, 256
Tube socket type 511
Philco parts: 8" dynamic speaker H28 or K37 and/or
audio output xfmr 32-7638
Shadow meter, working or not.
JERRY NEWTON, Rt.1 Box 262, Woodland, CA. 95695 916-662-0801

WANTED: National S-101 Audio Transformer, in good condition.
F.R. TESCHE, 3728 Mosswood Dr., Lafayette, CA. 94549 415-284-5608

WANTED: Chassis and speaker for Majestic Model 461.
NORM BERGE, 1275 Quincy Dr., San Jose, CA. 95133 408-251-7773

FRANTIC: Searching for early Q.S.T.'s, 1920 and prior. Must be complete, with covers. Will pay cash or tade tubes in whole or in part.
Also need schematic for ERLA S-51.
In addition, looking for paperback titled, "Man of High Fidelity- Edwin Howard Armstrong"- by Lawrence Lessing.
DAVE BRODIE, 315 Cotton St., Menlo Park, CA. 415-323-0353

WANT ADS ARE FREE TO ALL MEMBERS OF THE CALIFORNIA HISTORICAL RADIO SOCIETY. SUBMIT ADS TO THE EDITOR, ALLAN BRYANT, 38262 BALLARD DR., FREMONT, CA., 94536. DUE TO THE NON-PROFIT STATUS OF OUR SOCIETY, WE CANNOT ACCEPT ADS OF A COMMERCIAL NATURE. THE EDITOR RESERVES THE RIGHT TO EDIT OR REJECT ADS.

Hey,Dad! I think you grid leak is shot!

CHRS official
JOURNAL
Vol.3 No.4 December 1978

HAPPY NEW YEAR

Feature Set: RADIOLA 20 • COLLECTOR SPOTLIGHT: Bill Wakefield
Small Grid Bias Cells • CHRS LIFETIME MEMBER: Paul Courtland Smith
1978 AWA CONFERENCE • CHRS JOURNAL MASTER INDEX

THE OFFICERS:

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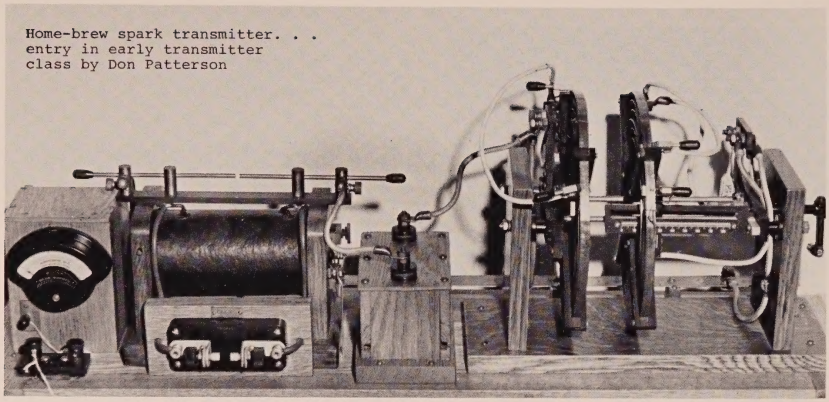
MUSEUM DIRECTOR AND COORDINATOR: To Be Announced, 1979
DR. CHARLES D. HARROLD AWARD RECIPIENT: Bruce Kelley, (AWA) (1978)
HONORARY LIFETIME MEMBER: Paul Courtland Smith (1978)

Published by California Historical Radio Society, Box 1147, Mountain View, Calif. 94040.

For membership correspondence address the Treasurer, James Cirner, 13366 Pastel Lane, Mountain View, Calif. 94040. Articles and non-commercial ads for the journal should be submitted to the Editor, Allan Bryant, 38262 Ballard Drive, Fremont, Calif. 94536. Historical data for copying or donation should also be sent to the Editor.

THE SOCIETY: The California Historical Radio Society is a non-profit corporation chartered in the state of California, and was formed to promote the restoration and preservation of early radio and radio broadcasting. Our goal is to provide the opportunity to exchange ideas and information on the history of radio (in California especially). We hope to be of service to those interested in such areas as collecting of equipment, literature and programs, etc., and restoration of early gear. Regular meetings and swap meets are scheduled at least four times a year, in the San Jose area. We now have over 130 members from throughout the state (and a few from out-of-state). As we grow, so do our benefits to our members. Tell your friends about us!

The Official Journal of the California Historical Radio Society is published quarterly and is furnished free to members. Our first issue was published in September 1975, and copies of early issues are still available; the first issue is $2.00, others are $1.00 each. Articles for the Journal are solicited from all members. Any items of interest, such as restoration hints, information on early radio broadcasts and personalities, anecdotes about the pioneers, etc., will be gratefully accepted. Anyone interested in editing a section of the magazine on a full-time basis should contact the editor. This can relieve our editor of a great deal of work and insure maximum attention to your area of particular interest.



Home-brew spark transmitter. . . entry in early transmitter class by Don Patterson

1978 AWA CONFERENCE

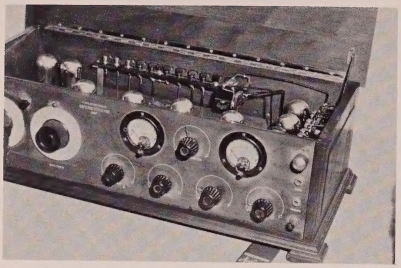
by Dave Brodie

It's difficult to believe that a year has rolled around since the 1977 National Conference of the Antique Wireless Association. Nevertheless here is what can only be a brief summery of the expanded 1978 Conference held in the resort town of Canadaigua, N.Y. during the four days ended Oct. 1, 1978.

PROGRAM: The Association adopted the theme "World War I Radio Stations and Signal Corps Gear." Several movie and slide presentations were presented relating to that period. These included a rare movie of WWI super-power transatlantic stations, a slide show depicting the conversion of spark and crystal sets to tube equipment, a new AWA show covering early amateur operations and the founding of the American Relay League (this program included a "visit" to an Air Corps Signal School and a discussion of WWI aircraft receivers and transmitters). Other programs covered the history of two famous early stations, NBD and WSL, each of which is the subject of a fascinating story of war-time operations. In addition to the "Theme" programs, the membership enjoyed other outstanding presentations, including: the story of the brilliant television inventor Philo Farnsworth, a brief history of RCA (GE) tube development from the late twenties to the present (supported by a spectacular display of tubes), and a brief history of the Federal Telephone and Telegraph Company.

AUCTIONS: Two auctions were held, one for general equipment and the other for tubes. The equipment auction grossed about $11,000 and the tubes grossed about $2,000. These annual auctions help maintain the AWA Museum, since 10% of the gross receipts are deposited in the museum fund. It may interest you to scan a few of the items sold:

EQUIPMENT: Federal Jr.-$125, Federal 57-$325, Steinite crystal-$95, AK sign-$225, Zenith 4R-$200, WE horn-$75, RCA 100 speaker-$15, Grebe CR12-$400, Crosley 52-$62, RADA-$90, Pilot TV-$100, Radiola 5-$190, Federal 61-$450, Sparton TRF-$22, Crosley Pup-$120, Duck catalog 1920-$33, Elect. Import Co. cat. 1919-$27, Radiola III and Balanced Amp-$90, AK 10-$285, Crosley 5-$100, Telegraphone Wireless Recorder-$475, Radiola 18-$25



A super-het described in an early issue of Popular Mechanics . . . entered by Mark Kaplan

TUBES: Spherical audion (no fil.)-$75, Meyers-$36, WE 205D-$6, Telefunken RV-25 (new)-$17, Mercury rect.-$95, Moorhead ER (no fil.)-$30, C-300 brass, tip-$9, WE 216A-$14, Marathon tube-$9, UX200 (new)-$6

EQUIPMENT CONTEST: Ten classes of equipment were established which attracted 92 entries. Marconi equipment captured first place in the "Prior to WWI" category and also in the "WWI Receiver" category. Other winners: Crystal sets - US Army Signal Corps BC14A, Regenerators - Sterling two tube, Superhets - Norden Hauck C-10, TRF - Priess, Other Receivers - Freed-Eisemann, Transmitters - DeForest OT3, WWI Transmitters - Air Communications, Equipment Associated with WWI - Audion control box, Best in Show - French receiver used at WWI transatlantic station NBD (Otter Cliffs, Maine). This set is owned by John H. Caperton.

GENERAL COMMENTS: The 1978 Conference was surely one of the most successful ever held by AWA, as is evident by a record attendance of about 600. The banquet on Saturday evening attracted a capacity crowd of 312 and the flea market was invaded by dozens of cars, vans and trucks, which started to arrive three days before the scheduled opening date of the Conference. Once again we commend our member Bruce Kelly for his continued assistance in making the 1978 AWA National Conference such a remarkable success.

prices by Paul Giganti
photos by Bruce Kelly, AWA

One day in the 1830's, Samuel F. B. Morse was caught out in a rainstorm without his hat on, and he fell briefly ill. While recovering in bed, Morse devised a system for sending messages by blowing his nose in a series of dots and dashes. He named his creation the "Morse cold" in honor of the inflammation that had inspired him. However, listeners understood him to call it the "Morse code". For a time, only communicators with respiratory ailments could be employed to send "Morse code" until the inventor found a means of sending the dots and dashes electrically. -- SF Examiner

Coming events

The Winter CHRS swap meet will be held on Jan. 27, 1979 (Saturday), from 9:00 to 4:00. The location will be Gish School, 711 Gish Road, San Jose. Admission is 50¢ per member, tables are free. This meet is being advertised on KMPX 99FM, the "Big Band" station.

The CHRS/AWA Spring meet will be held at Foothill College on May 5, 1979. More information on this meet will be available in the March issue. Volunteers are needed. Contact Norm Berge, 1275 Quincy Drive, San Jose, Calif. 95133, (408) 251-7773.

Antique Radio Prices and Their Phenomenal Escalation

by Paul Giganti

In a way I feel partly responsible for today's high prices on old radios. When I first began to collect, I made up my mind to accumulate a collection in a hurry. So I decided to pay high prices in order to attract the gear; such as $5.00 for a Grebe Synchrophase (my first set), $3.50 for an Aeriola Senior, $50.00 for an IP-500 (a fantastic price), and $15.00 for an AK Breadboard. This really blew the market and sellers began to realize the value of the treasures in their attics.

I met Harold Greenwood about 20 years ago when I first became interested in the old gear. Harold had already been collecting for several years and had just begun work on the Greenwood Book, the first ever written on Antique Radio and Wireless. You probably know the book as Vintage Radio, the title given it by Morgan McMahon when he took over the revision and reprinting of the book. I recall vividly a trade I made with Harold. He had been looking for a Radiola Special, a one-tube Regen receiver, and I had the good fortune of finding one. So I went down to see him and set the radio on his desk. He went into his garage where the floor was literally covered with his duplicates. He pointed to a Kennedy 110 and asked me if I thought that would be a fair trade. I was so shocked at such a fabulous offer that I stuttered a little. He took this to mean that I was not satisfied, so he kicked a Grebe CR-8 and said, "How about adding this?" Then I was really flustered and started to say,"Do you mean I can have both?" He pointed to a CR-5 Grebe and said he would throw it in also. I pulled myself together and said, "Yes".

A few years later, Bill Traver and I purchases the Greenwood collection. We acquired almost everything in the book, a total of about 300 pieces, including all the tubes for the receivers. We did not get the tube collection. This was purchased by Floyd Lyons, an active light bulb collector who was beginning to take an interest in radio tubes. The price of the collection was $3000 or $10 per unit. Mind you, this included Marconi, DeForest, RCA, Grebe and at least five AK breadboards. Overnight I became a poor-man's Glen Streeter. I kept what I wanted and readily disposed of the rest. I even sold a DeForest tuner to the Smithsonian Institution.

I recall another incident which occurred during the depression. A friend and I walked into a junk shop in Chicago and spotted a Grebe CR-8 receiver. The price was $1.00, so we chipped in 50¢ each, took the set home and sawed it in half. I wanted the variocoupler for a crystal set and he took the rest. Today I would be shot for such a sacrilegious act.

The price of antique radios is determined by several factors:

1. How anxious the buyer is to possess the object.

2. How reluctant the seller is to part with it.

3. Then there is inflation.

We do, however, have guidelines;

such as previous experience. For instance, if a radio is priced at $100 and does not sell, obviously the price is too high. In a few exceptional cases, raising the price might cause it to move. Some buyers are not attracted to a piece that is, in their opinion, too "cheap".

Some sets, for no apparent reason, seem to sky-rocket in value. One of these is the Atwater-Kent Breadboard. Today, this is a very popular set and in extreme demand. About 5 years ago I had 12 breadboards in my garage, priced at $35.00. They did not move. Nobody seemed interested in them as they were too "modern". Finally they went, one by one. Last month I was broker on a sale of an AK model 5. The price: $1320. What happened to cause this sudden jump in value of a set that not too many years ago sold for $85.00? I can tell you why. A collector in Illinois had a duplicate AK-5 which he was holding for trade. A certain collector in Lodi, California made him an offer he could not refuse. $1000, at that time the highest price ever paid for an AK Breadboard. This set a precedent. From then on, any collector with an AK-5 would take no less. I ask you, who is to blame for this state of affairs, the buyer or the seller?

At this point I would like to say something in defense of the dealer one of whom, because I have to eat, I happen to be. Some collectors take a dim view of dealers in our hobby and tolerate them as a necessary evil. I once visited a collector who told me that I was not a good collector because I sold things. I pointed to a Radiola III on his shelf and asked if he would take $1000 for it. He said, "Yes." So then I told him that the only difference between us was that his price was higher than mine.

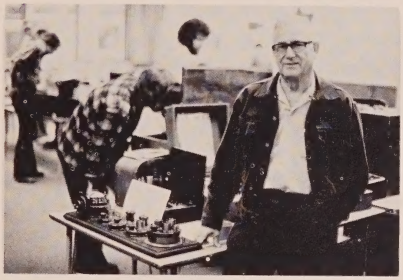
To a lot of collectors, a dealer's prices seem high. Let me say something in this regard. Let us take a hypothetical case. A dealer hears about a collection for sale through the grapevine. He spends $40.00 on phone calls. Then he buys a plane ticket and spends two or three days inventorying the collection and arriving at a price. In the meantime he must put up at a motel. If the deal goes through he hires a moving van and several helpers; then proceeds to drive across the country. Arriving at the home base, he rents several garages for storing and sorting. Some of the sets are very good and some are three dialers. And you know how they go. I forgot to mention the loan at the bank, with a substantial rate of interest attached. Then he sits back and waits for customers to break down his door.

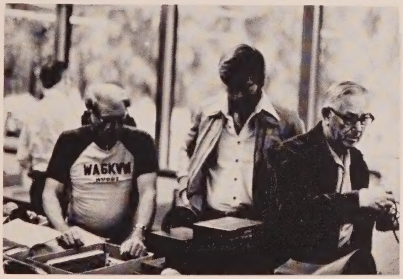
Speaking of three dialers, don't sell them short. Some of them are quite beautiful and can make a good addition to any collection. Some collectors, especially the new ones, are turning up their noses at the three dialers. All they want is Marconi, DeForest, Atwater-Kent Breadboards, etc. I'm afraid they are in for a disappointment. They might be passing up a good deal, as prices on three dialers are as yet not affected by inflation. It is possible to pick up a good three dialer for as little as $35.00 to $75.00.

In conclusion, I would like to tell you a true story. It happened in Holland over a hundred years ago. Holland, as you know, has always been famous in a commodity market similar to our Board of Trade. People were mortgaging their homes and buying tulip bulbs on speculation. Soon the price reached $2000 for a single tulip bulb. One day, during the town meeting, a wise old man got up and said, "Folks, let's face it, no tulip bulb is worth $2000." At that moment the tulip market collapsed and a great many people lost their shirts. Wouldn't it be nice if some wise old man would get up and say that no old radio is worth $2000?

September Swap Meet

These photographs of our September meet were taken by George Durfey.





by Don Stoll

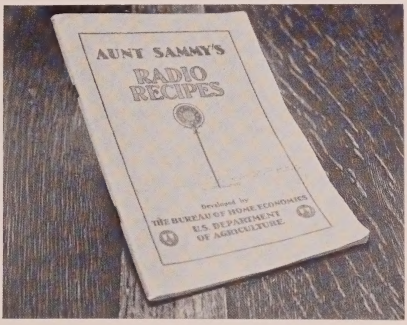
As a newcomer to the fraternity of early-radio buffs, I have suddenly reached the first plateau . . . which is the deflating realization that bargain-priced "good" radios of early vintage are not stumbled across as easily as I had hoped. It seems like all the local antique stores are "picked over" regularly and often are allied with a mysterious collector/restorer/repairer of antique radios. The antique flea markets seem to always have a squad of undercover collectors combing the stands repeatedly for treasure radios. And the local newspapers are slim pickin's at best.

To alleviate the "no radio blues" (after wasting two hours examining countless flea market stands with not one find), I have found relief in collecting amusing or amazing novelties that capitalized on the public radio boom of the 20's and 30's.

I'm not sure whether novelty radios (radio-clocks, radio-lamps, radio-toys, etc.) should be classified as radio novelties or considered a separate category of collector items.

Any comments or suggestions would be appreciated. Address to: Don Stoll, c/o Foundation XIV, 2245 Old Middlefield Way, Mountain View, Calif. 94043.

Below are two recent finds. "Aunt Sammy's Radio Recipes" cost $1.25 and the "Radio Ribbon" probably cost about $1 (part of a package deal). So novelties seem to be cheap entertainment at least, and reasonably plentiful compared to radio sets.



86-page soft bound booklet, 6"w X 9"h, printed in 1927. First page has footnote that explains: "Aunt Sammy's Radio Recipes is in no sense a complete cookbook. It is issued to meet the enormous demand for printed copies of the most popular recipes broadcast from October 1926 to June 1927, in the "Housekeepers' Chat" programs of the radio service, United States Department of Agriculture." About 300 menus offer items from Quick Turnip Soup to Orange Russe. Hopefully there are a few gourmet "finds" in these pages. I'd like to know who announced the Aunt Sammy role.

Wooden spool 1-3/4" dia. X 3" h. with 100-feet (I haven't checked length) of what appears to be gold-strand woven ribbon about 1/4" wide by 0.020" thick. About 20 strands of bright gold foil or leaf sewn and/or woven with yellow thread. No date on cardboard tube package or instruction sheet. Instruction sheet says:

> "RADIO RIBBON, The Perfect Aerial for Indoor Use, made by HY-SIL MFG. CO., Revere, Mass. . .ideal for both crystal and tube sets. . .a striking combination of ornament and utility. . .unusually efficient for long distance reception. . .may be used as a loop, either of the helix or solenoid type.

Building a Spark Transmitter

by Joe Horvath W6GPB

Do you have an old Spark Transmitter in your collection? If not, then I don't think that your collection is complete!

Spark Transmitters and the old Mineral Detectors were the oldest type of radio gear ever used. So if you want your collection to be a real representative one, then the old Spark Transmitters and Mineral Detectors are what you want in your collection.

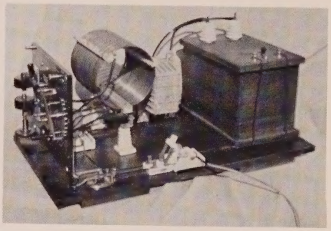
This article is about how I built myself an old Spark Transmitter out of parts that were just laying around and at times in my way!!

Many collectors are laboring under the opinion that old Diathermy machine parts are not suitable for old Spark Transmitters. Nothing could be further from the truth.

The biggest bet that collectors are missing is all of the old spark type Diathermy machines that are around. These Diathermy machines had very excellent parts in them, especially the spark gaps. Victor and Fischer were two that manufactured these machines; they also marketed many of these same components to the old spark radio operators.

For several years I had a beautiful Victor Marble panel, 12" X 16" in size, on which were mounted a beautiful spark gap, a double pole double throw high/low potential switch, a switch lever with six tap switch points, antenna and ground terminals. With the exception of the spark gap, all of the parts are beautiful polished brass.

This marble panel then became the nucleus of a Spark Transmitter that would enhance anyone's collection.

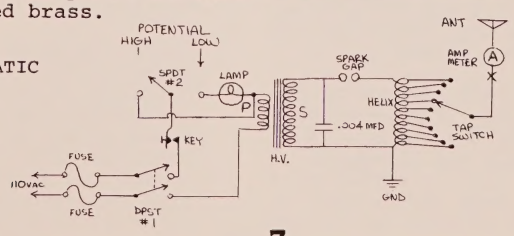


Warning! These Spark Transmitters are illegal to use on-the-air!!!

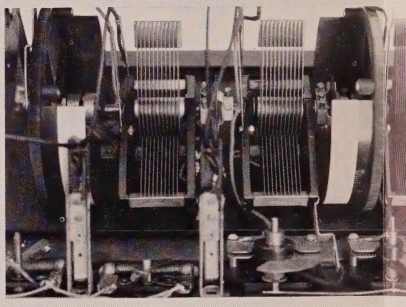
PARTS LIST:

- .One Porcelain screw type fuse holder.
- .two thirty ampere plug fuses.
- .Switch #1, DPST porcelain knife switch.
- .one sending key.
- .Switch #2 SPDT mounted on marbel panel, high/low potential switch.
- .one porcelain type light bulb holder, for dropping the voltage to cut power.
- .High voltage transformer, any make will do; mine is a Packard Electric 13,000 volts at 1/2 KW rating.
- .Mica transmitting condenser, 004 MFD. at 12,500 working volts or better.
- .SG spark gap, adjustable gap, could be rotary spark gap also.
- .Helix coil -- any well-made copper coil will do that can be tapped.
- .Antenna tuning tap switch and lever, heavy duty points.
- .X-loading coil or heavy duty variometer to increase the wavelength; it would depend on the length of antenna that would have been used.
- .0-Hot wire amp-meter.

SCHEMATIC



RCA Radiola 20



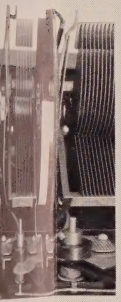
by Floyd A. Paul

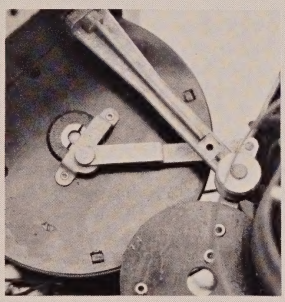
GENERAL DESCRIPTION: Radiola 20 is a five tube broadcast receiver which provides very high sensitivity and selectivity for its design period. It was made in 1925. The set contains two stages of TRF amplification, a detector and two stages of audio. It also contains tickler-controlled regeneration. The three ganged condensers mounted on one selector drum are of the straight line frequency type. Original RCA literature on the set recommended using the Radiola Model 100 or UZ-1325 as loud speakers for the Radiola 20. The original set instructions recommended a 4-1/2V "A" battery, three 45V "B" batteries, and a "C" battery. The set uses four UX-199's and one UX-120. The dials, knobs and jacks on the front of the cabinet are all exposed and easy to operate. The front panel controls are as follows: Station Selector Drum, Amplification Drum, 1st RF Stage Vernier, 2nd RF Stage Vernier, Battery Setting and Volume. The three front panel jacks were: 1st Stage AF, 2nd Stage AF and Voltmeter Fins. The set sold in 1925 for $180 and had the additional model designation of AR-918.

TUNING: All tuning controls work very smoothly and effectively. The set is quite selective and the movement and the rotary motion feeling of the controls is among the nicest of any early model battery sets. The sloping panel of the cabinet allows one's hands to rest on the panel while the fingers tune the Station Selector dial or control the regeneration. A solid, smooth Rolls Royce tunity quality and feeling is experienced when operating the Radiola Model 20 set.

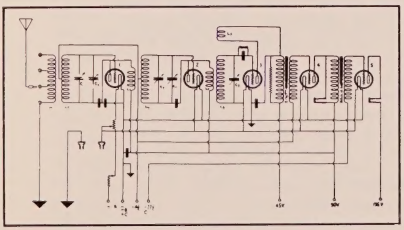
BATTERY VOLTAGE AND VOLUME CONTROL KNOBS: The Battery Knob adjusts the voltage to all filaments but a Volume Control is also in series with the 1st RF tube and is used as the primary control for volume. The battery adjust rheostat is six ohms and the volume control is 20 ohms. The six ohm battery rheostat varies the 3V supply from 3V down to 0.8V. When the six ohm rheostat is turned to maximum voltage, the volume control varies the E_f of the 1st RF tube from 3V to about 1V. Both Battery and Volume Controls have more than enough adjustment for extreme variations.

SELECTION OF UX-199's FOR OPERATION: In getting the set to play and in selecting the UX-199 tubes, the placement of tubes in specific sockets seems somewhat critical. Again, as in the two featured set articles reported in the last two CHRS journals, the detector





tube circuit is more tolerant to weak tubes so that UX-199's with weak emission can be used fairly successfully in the detector socket. Also, microphonic tubes became annoying in the playing of this set. Part of this is due to the common bakelite strip which mounts all five tubes and gives no shock or vibration damping to any of the tubes with respect to each other, even though the whole bakelite strip is, itself, shock mounted from the chassis by rubber grommets. But, by rearranging several UX-199's, a minimum of microphonics was found.



BIAS SUPPLY AND PLATE VOLTAGES: The bias supply available for these tests was a -10V supply, so several supply arrangements were made to see the effects since the schematic called for a -4.5V bias and a -22.5V bias. First, the -4.5V bias point was grounded and the -10V applied to the UX-120. This worked fairly well. Both set bias points were tied together and the -10V bias was applied. This heavy bias on the RF and 1st audio tubes biased the tubes to near cut off and considerably reduced volume was obtained. The best operation came by dividing the bias supply in half with a resistor network and applying -5V to the -4.5V point and applying -10V to the -22.5V point on the set. A Cunningham tube manual of 1933 recommends a bias of -16V for an E_p of 135V. In my tests the higher plate voltages of up to 150V to the UX-120 did not produce additional power output, and so a plate voltage of 60V was used in my operating tests. The I_p of the UX-120 was limited to 2 ma. which was also the current through the horn speaker. The UZ-1325 horn speaker has 2,000 ohms and produced a 4V drop in the plate circuit of the UX-120. The horn speaker was also tested in the 1st audio stage jack and on strong local signals fairly good volume was obtained from the horn.

The detector worked well at E_p voltages of 30 to 50 volts. At 25 volts and lower the volume of the detector fell off. An E_p of 40 to 70 volts worked well on the RF and audio tubes. Higher voltages of 80 to 100 volts did not cause any better performance. At 60V, 4 ma. was drawn by all RF and audio tubes.

(Continued on next page)

On Restoration

by Dave Brodie

A Timely Reprint from an Editorial in the September 1978 Bulletin of the British Vintage Wireless Society.

Restoring and researching a piece of equipment alone can be no easy matter and all collectors are reminded that the third aim of the Society is preservation not renovation. This does not mean that renovation or restoration is a bad thing. Our emphasis is on preservation, and we consider that this must take precedent in all cases. Time and again, important equipment has been ruined by the enthusiasm of the do-it-yourself restorer -- and not only in the wireless line! If you have what appears to be a unique item, it is all the more important that you postpone restoration until all the facts are known. Even if your item is not unique, you may get great personal pleasure from "working on it," but try to remember posterity! If in fact the BVWS does not constitute a "museum" of a distributed kind, then we should try to adopt the attitudes of a good museum keeper -- we should look after things and find out what we can about them before passing them on to the next generation. We don't want to pass on a lot of well polished "fakes," or find ourselves in the embarrassing position of fellow collectors showing no interest in our prize exhibits simply because they are over-restored. The exhibition at the Victoria & Albert Museum last year showed that BVWS collectors on the whole are well aware of these principles.

In further correspondence with the Editor of the BVWS, he aptly stated: "The first exciting days of collecting and restoring for new members seem to be really quite destructive! Surfaces are scraped and revarnished with all sorts of modern polyurethane materials, etc. -- but in time collectors see the mistake of doing this and begin adopting the conservationist's approach."

CHRS adds its "Amen" to the above.

RADIOLA 20 (cont'd.)

MECHANICAL CONSTRUCTION OF CHASSIS AND PARTS: The chassis and parts layout is orderly and well thought out. The three gang, straight line frequency condensers are separated enough to add in the reduction of RF coupling between the RF stages (fig. 2). The structural aspects of the chassis, mounting flanges, coil mounts, tube mounts, etc. are rigidly designed and mechanically sound. The tickler controlled regeneration wheel is uniquely designed to roll the tickler coil smoothly and effectively into and out of the coupling coil's magnetic field (fig. 3). The set is extremely well built mechanically.

The Marconiphone

The Triumph of the Master Mind

This is the last issue in which the "Cats Whisker" book will be offered. This means that if you plan to take advantage of our special reduced rates, your order must be received by March 1, 1979. A few copies will be available at our future swap meets, on a "while supply lasts" basis. The club will continue to offer books on related subjects, when they become available.

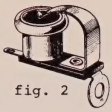


fig. 2

Small Grid Bias Cells

by Allan Bryant

Many receivers of the 1930's employed Duo-diode triodes with high mu factors, such as the 75 and 2A6. These were used as a combination second detector, AVC and first audio. The triode requires a low negative bias and has a low plate current. Furthermore the contact potential at the grid is unusually high for a new tube (about +.9V), gradually decreasing with age. Contact potential is defined as that point where positive grid current starts to flow (fig. 1). Contact potential is caused by the initial velocity of emission of electrons from the cathode and an electro-thermal effect due to the differences in temperature and in material composition of the grid and the cathode.

fig. 1

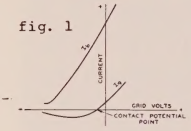
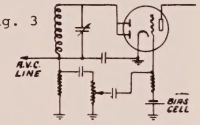


fig. 3



This introduces two difficulties. First, these tubes should operate at -2 volts C bias. If the bias is originally set at -3 volts to overcome the contact potential of +.9 volts, eventually the tube will be over-biased. If the bias is produced automatically by a cathode resistance, the latter would have unusually high resistance for an audio tube. Unless extremely high capacity shunt condenser, which are expensive, are used, considerable AF degeneration (loss of signal strength) will occur. Much of this difficulty is eliminated by the Mallory grid bias cell, shown in fig. 2. This cell is acorn shaped, about 5/8" in diameter and 11/32" deep. It is an electrolytic cell which originally has a no-current potential of 1 volt, and if charged by a current will have a potential not exceeding 2 volts. It holds its charged potential for about 48 hours, gradually dropping to normal.

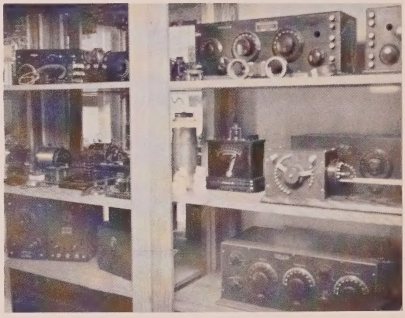
A typical circuit to overcome the effects of degeneration and varying contact potential is shown in fig. 3. For a new tube, the cell which is in the grid circuit with a grid resistor, cancels all the + contact potential, leaving a net C bias of about -.1 volt. On a strong signal, grid current flows momentarily, charges the cell to -2 volts, and the net bias is -2+ (+.9) = -1.1 volts. As long as the signal does not exceed this value, normal action takes place. Momentary excessive grid signal only recharges the cell. As the tube ages, its contact potential drops and more of the cell voltages are usable. Thus with aging of the tube, it will handle stronger signals. Inasmuch as the cathode C bias resistor is no longer used, degeneration is obviously eliminated as a problem.

These cells were said to have an unlimited life, and the cost of the cell more than balanced the need of cathode bias by-pass condensers. You will find these cells employed in many Stromberg Carlson and later model Spartan receivers.

The problem we collectors encounter today, is what to do with the old cells. If your set has the cell intact, measure its potential with a voltmeter. Most likely it will be dead. Jim Cirner and I have had good luck in rejuvenating dead cells, by letting them soak in rubbing alcohol for a few minutes. This procedure will rejuvenate most cells to approximately 1.2 volts. If this method doesn't work, or if you're missing the cell, try replacing it with an AA cell (1.5 volts). Be sure to observe proper polarity when wiring it into the set.

Parts of the preceding article were taken from "National Radio News", February/March, 1936.

Bill Wakefield



I have been collecting in a somewhat serious vein for about three years. At first I was what might be termed a "general collector". Recently, however, my collection and interests have focused on the period of early broadcast (to 1924) plus some wireless components. For balance I do maintain a few examples of typical sets made up to 1940. Books, catalogs and magazines are an equally important part of collecting to me, as the enjoyment derived from reading them is considerable.

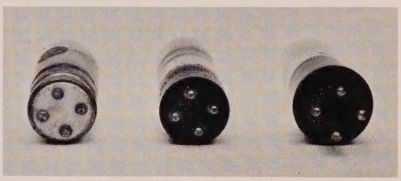
I would be hard put to pick a favorite set. The pieces in my collection fit a theme and each one is as important as each piece is to a puzzle. Paragon and Grebe items do evoke special interest, though.

Visitors are always welcome, and I always appreciate invitations to visit other collectors.

The 199 Tubes

by Russ Winenow W6AVG

The Cunningham tube manual of 1934 described the V99 and the X99 as being 3 electrode general purpose tubes designed for dry cell operation. The two types had different bases (fig. 1 and 2). The long contact pins of the X99 fit the standard four contact socket, the V99 fits only the small shell socket with bayonet slot. The standard four contact socket mentioned was the type having accommodations for four long pins, two of which were heavier than the others. The 99 was designed for use as an audio or radio frequency amplifier. Note that the X99 and V99 have different internal connections (fig. 3).



Gerry Tyne gives us a run down on the development of the 199.

1920 GE supplies Phillips of Holland with machinery to manufacture tubes.

1921 GE produces the first thoriated filament.

1923 Tubes by Phillips appear in the US market labeled "Star tubes" and marked model 199. RCA complains and GE files suit. In settlement Phillips agrees to stay out of RCA's territory.

1924 The tipless version appears.

1925 UV199 superseded by the UX199 (same tube but with different bases and filament connections). The UX120 was developed in response to demand for higher outputs.

1927 GE brings out the 230D and the 231D for use in the same applications as the UV or UX199. The 230 base matched the old 199 and the 231 the new.

W.E.

References: Gerry Tyne, in the "Saga of the Vacuum Tube," published by Howard Sams, 1977. RCA Tube Manual, 1932. Cunningham Tube Manual, 1934. Sylvania Tube Manual, 1935.

TYPES V99, X99
DETECTOR, AMPLIFIER

(Type V99) (Type X99)

CHARACTERISTICS

Filament Voltage DC	3.0 to 3.3	Volts
Filament Current	0.060 to 0.063	Ampere
Direct Interelectrode Capacitances:		
Grid to Plate	3.3	μμf
Input	2.5	μμf
Output	2.5	μμf
	V99	X99
Maximum Overall Length	3¼"	4¼"
Maximum Diameter	1⅛"	1⅛"
Bulb	T-8	T-8
Base	Small 4-Nub	Small 4-Pin
Operating Conditions and Characteristics as an Amplifier:		
Filament Voltage	3.0 to 3.3	Volts
Plate Voltage	90	Volts Max.
Grid Voltage	−4.5	Volts
Plate Current	2.5	Ma.
Plate Resistance	15400	Ohms
Mutual Conductance	425	μmhos
Amplification Factor	6.6	
Operating Conditions as a Biased Detector:		
Plate Voltage	90	Volts Max.
Grid Voltage	−10.5	Volts (Approx.)
Plate Current	Adjust to 0.2 ma. with no input signal	
Operating Conditions as a Grid-Leak Detector:		
Plate Voltage	45	Volts
Grid Condenser	0.00025	μf
Grid Leak	0.25 to 5.0	Megohms

CIRCUIT APPLICATION

Sylvania 99 is a general purpose tube which was designed for dry cell operation, the filament operating properly at 3.3 volts and only 0.06 ampere. Originally the filament was of thoriated tungsten, but the tube is now made with an oxide coated filament.

The tube may be employed either as an audio or radio frequency amplifier, or as a detector. It is used mainly for replacement purposes in receivers designed for this type.

Recent improvements in radio tube design have been incorporated in this tube. The present characteristics make it quite satisfactory for use in low filament consumption amplifiers, especially where a compact design is required. The non-microphonic properties of the tube are particularly desirable in such applications.

When used as a detector, plate potentials of 20 to 40 volts may be employed without grid voltage. The proper negative grid bias for use with different plate voltages when the tube is used as an amplifier are:

Plate Voltage	Negative Grid Voltage
60 volts	1.5 to 3.0 volts
80 volts	3.0 to 4.5 volts
100 volts	4.5 to 6.0 volts

The base pins of the X99 fit the standard 4-contact socket; the V99 is supplied with the small short pin base and fits only the small shell socket with bayonet slot. Operation of the tube in a vertical position is recommended.

BIOGRAPHIES

The following biographies are those of our new CHRS officers.

FLOYD PAUL, Technical Editor: Floyd Paul is an Electrical Engineer who has spent 27 years in Aerospace -- the last 15 at the Jet Propulsion Lab in Pasadena, as Manager of Reliability Programs Section. He worked on most JPL space programs, designing and testing launch hardware. Floyd repaired radios and installed car radios in 1939-41 while in high school. About five years ago he started his collection of battery and AC sets. He is a ham, W6THU, and holds two commercial licenses. Floyd enjoys the restoration of sets and collecting old literature. He is a member of AWA, SCARS, and Edits/Publishes the Roaring Twenties Newsletter.

ALLAN BRYANT, Editor in Chief: Allan Byrant is an Engineer with Amdahl Corporation in Sunnyvale. He works in the System Test Department, testing and debugging large digital computers. Allan has been collecting actively for the past three years. He has a small collection of crystal, battery and AC sets. Allan is a deadicated flea market scrounger.

RUSS WINENOW, Tube Editor: Russ Winenow started collecting in 1919. One of his first was a DeForest spherical audion which he bought from a classmate in high school along about 1920. He became a licensed ham operator in 1921. He worked for some years in the jewelry business; then during and after the depression was an office worker for the state. The war years were spent in the shipyards. After the war he did commercial radio repairing (having passed the exams for radio telephone first and telegraph second) for the EMMCO Electric Company of San Francisco. Leaving there in 1948, Russ went to work for the Robert Dollar Company (Heintz & Kaufman Division of Globe Wireless). This association allowed him to acquire various transmitting and experimental tubes which had served their purpose and were no longer required by the factory. Leaving H & K in 1952, he went to work for Lenkurt Electric Company in San Carlos, retired in 1969, returned to work on contract, and is still at it. Russ scours garage sales and flea markets as often as he can. He is a life member of the IEEE, member ARRL, AWA, QCWA, was secretary of the Lenkurt Amateur Radio Club for ten years, is licensed Amateur Advanced W6AVG, Citizens Radio KDU 8597 and Commercial Radio Telephone First.

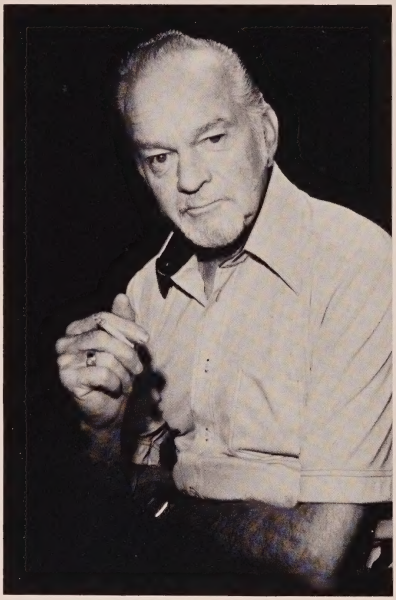
GEORGE DURFEY, Photographer: George Durfey, a Research Engineer at SRI International, has had s latent interest in old radio equipment for many years. This interest has blossomed into activity with his joining CHRS. He collects almost anything relating to radio. Atwater-Kents are a particular favorite. Restoring and getting the old equipment operational is an especially rewarding aspect of the hobby for him. Photography has also been a hobby of his form many years.

DON STOLL, Publisher/Printer: Don Stoll currently owns Foundation XIV, a small printing company specializing in full-color custom printing. Don's interest in radio started with ham radio in 1953 (K2DIX), then moved through the USN as a Communications Technician, to RCA in Florida as a computer lab technician, to Ampex as a technical writer. Tech writing gave way to advertising copywriting, then a technology-oriented advertising agency, whereupon Don now produces complete brochures, catalogs and the likes for local technology companies. Having recently discovered CHRS, Don's major interests are Art-Deco radios of the late 20's to early 30's, and radio novelties and graphics of all periods.

CHRS LIFETIME MEMBER: Paul Courtland Smith

Paul Courtland Smith has been chosen to receive the first CHRS Lifetime Membership. Paul is an Associate Professor of Broadcast Communication Arts at SF State University. He personifies the complete sound man. His experience over more than thirty years includes working on the first network use of audio tape, and being production engineer on programs including Jack Benny, Edgar Bergan, Suspense and others.

Presently, in addition to teaching, he is Production Coordinator for the 1979 Grammy Awards Show. This show will feature a salute to San Francisco's recording and music industry. He is also a member of the National Recording Academy (NARAS) Television Committee. Paul Smith, it is indeed an honor to welcome you to our club.



Brief Review of Experience and Activities in Recording, Radio and Television:

1938: Became chief engineer for Metro Recording Co., in San Francisco. Personally handled Art Linkletter's "Gallery of Celebrities" show, on-the-spot disc recorded CBS program.

1939: Operated California State-operated Radio Division of the Golden Gate International Exposition at Treasure Island. I was involved with such shows at "Eddie Cantor's Camel Caravan", "The Benny Goodman Show", "Burns and Allen", "Firestone Hour", and many more.

1942: Set up and mixed music broadcasts for Ray Noble, Glen Gray, Freddy Martin, Desi Arnaz, Stan Kenton, Red Nichols, and many others.

1949: Was assigned to Bing Crosby show and worked with the very first Ampex tape machines.

1953: At their request, was transferred to CBS Radio Hollywood staff.

1954: Was mixer and editor on the new Bing Crosby daily show.

1956: Assigned as mixer on CBS "Matinee" show.

1959: Accepted offer of transfer to CBS Television Videotape department at TV City. Became Videotape editor. Notable successful assignments included the "Jack Benny Show", "George Gobel Show", "Red Skelton", "Buick Electra Playhouse", "Studio One", "Twilight Zone", and "Playhouse 90".

1962: Transferred to the local CBS TV operation at Columbia Square as audio engineer.

1964: During a five-week vacation in April/May 1964, did a contract job for United Recorders, Hollywood, including a Louis Armstrong session at the "Hungry i" in San Francisco for Capitol Records. Was promoted to the position of Central Control Supervisor.

1964: In November, after a 23-year association, resigned (over flatteringly strenuous objections) from CBS.

1965: On the first of January, officially assumed duties as System Manager for ORCO (Oroville Communications Co.) in Oroville, California. Technically, the system wasn't perfect, therefore resigned effective June 30, and returned to Hollywood. Accepted a position with ABC where assignments included "The King Family", "Shivaree", "Lawrence Welk", "Hollywood Palace", and the "Jimmy Dean Show".

FOR SALE OR TRADE: Radiola III, IIIA, V, and an RF chassis for V. Crosley 51, FADA, British Ericsson 0/1002 xtal set, Crosley two stage amplifier. Send SASE for list and prices. F. A. Paul, 1545 Raymond, Glendale, Calif. 91201

FOR SALE: Power your battery sets: Wet cell 6V A battery - $10, Majestic B eliminator with spare BH tube in carton - $10, 201A tubes - $4, 199 tubes - $5, Audions - $40 (good filaments), 216A - $10, various other WE tubes - $10. Dave Brodie, 315 Cotton Street, Menlo Park, Calif. 94025, (415) 323-0353

WANTED: QST's prior to 1922, schematic for Hammarlund-Roberts 4 tube set, schematic for Clapp Eastham Radak model DD, schematic for Erla model S-51, Crystal sets for cash. Dave Brodie, 315 Cotton Street, Menlo Park, Calif. 94025, (415) 323-0353

FOR SALE: Westinghouse RADA with tubes, like new appearance, works well - $275, A366 Murdock condenser, pg. 48 Duck #13 cat., 15 panel DeForest receiver set, pg. 59 Duck #13 cat., with Moorhead tubes - $850. Arthur J. Bardish, 4042 Herman Avenue, SW Grand Rapids, Mich. 49509

FOR SALE: Tuska 300 - $250, Radiola II (no lid) - $130, Radiola II (complete) - $175, WE cone speaker - $40, Crosley Trirdyne #3R3 - $40, Super Unidyne TRF - $65, Aeriola Sr. (excellent) - $125, Aeriola Sr. (fair) - $85, Crosley 51 - $75, Federal 110 - $310, UX199 tubes - $5 ea., 201A's - $4 ea., DeForest Spherical Audion in original box (no fil.) - $125, WD11 tubes - $20 ea., Welsh tube - $40, DeForest DV-2 tube - $10, National SW5 receiver - $150, Western Elect. 4B rereiver - $220. Trades on all of the above will be considered. Paul Giganti, 2429 San Carlos Avenue, San Carlos, Calif. 94070, (415) 593-4723

WANTED: AK 20 compact, prefer without case, must be in reasonably decent shape. Also want Radiola 28 chassis and loop. Norm Berge, 1275 Quincy Drive, San Jose, Calif. 95133, (408) 251-7773

WANTED: Remler 330 control panel. Magnifier for 2" Pilot TV. Allan Byrant, 38262 Ballard Drive, Fremond, Calif. 94536, (415) 791-8967

TRADE/WANT: I have for trade an RC, an Arborphone, and some other misc. items. I am interested in getting AK speakers, radios and components, including literature. George Durfey, 912 LaMesa Drive, Menlo Park, Calif. 94025, (415) 854-4041

WANTED: AK Breadboard radios had a metal name plate, size about 2-1/2" X 5/8" with screw hones exactly two inches center-to-center.

ATWATER KENT
Philadelphia, Penn.

Will pay $5.00 for an extra-clean one, or the best one received. Others will be returned by prepaid mail. Ed Tilton, 2414 Southview, Alamo, Calif. 94507

WANTED: ART-DECO Radios, Spartan or other brands. Mirror, metal or plastic cabinets, consoles or table models. Also catalogs, brochures or other literature regarding ART-DECO Radios. Don Stoll, Foundation XIV, 2245 Old Middlefield, Mountain View, Calif. 94043, (415) 965-0112

WANTED: Old radio magazines and related literature for donation to CHRS for use in the journal. Please send material to the editor

WANT ADS are free to all members of the California Historical Radio Society. Submit ads to the editor: Allan Bryant, 38262 Ballard Drive, Fremont, Calif. 94536. Due to the nonprofit status of our society, we cannot accept ads of a commercial nature. The editor reserves the right to edit or reject ads.

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Polydyne

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Aurodyne
Autodyne
Babydyne
Blitzdyne
Celeradyne
Cincodyne
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Clear-o-dyne
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Dyne Fever

Radio sets of the 20's were typically named with the suffix "dyne". Among the first to use the word was Reginald Fessenden who coined the word "Hetrodyne". F. A. Paul started a "dyne" listing in his Roaring 20's newsletter in the Spring of 1977, and got several of his readers to respond by sending in additional names. The latest listing is shown here, and it is requested that anyone knowing of additional "dyne" name sets drop a line to F. A. Paul, 1545 Raymond, Glendale, Calif. 91201.

The Journal

The CHRS Journal, as I see it, is the second best radio club journal in the country -- and we are trying hard to improve it. Perhaps the most serious problem we face is stagnation due to the lack of articles. As we try to increase the size of the journal, it becomes apparent that only about 8% of the members contribute in any way, this includes ads. In this new year I solicit all members to take an active interest in your journal. This could be in the form of an ad, article, or magazine clipping. Also, members' comments on the journal are welcomed. The following dates are the deadlines for the next two journal issues. All ads, stories etc., should be submitted prior to these dates.

DEADLINE for March issue: February 1, 1979
DEADLINE for June issue: May 1, 1979